

## **Natural Gas Quality Specifications**

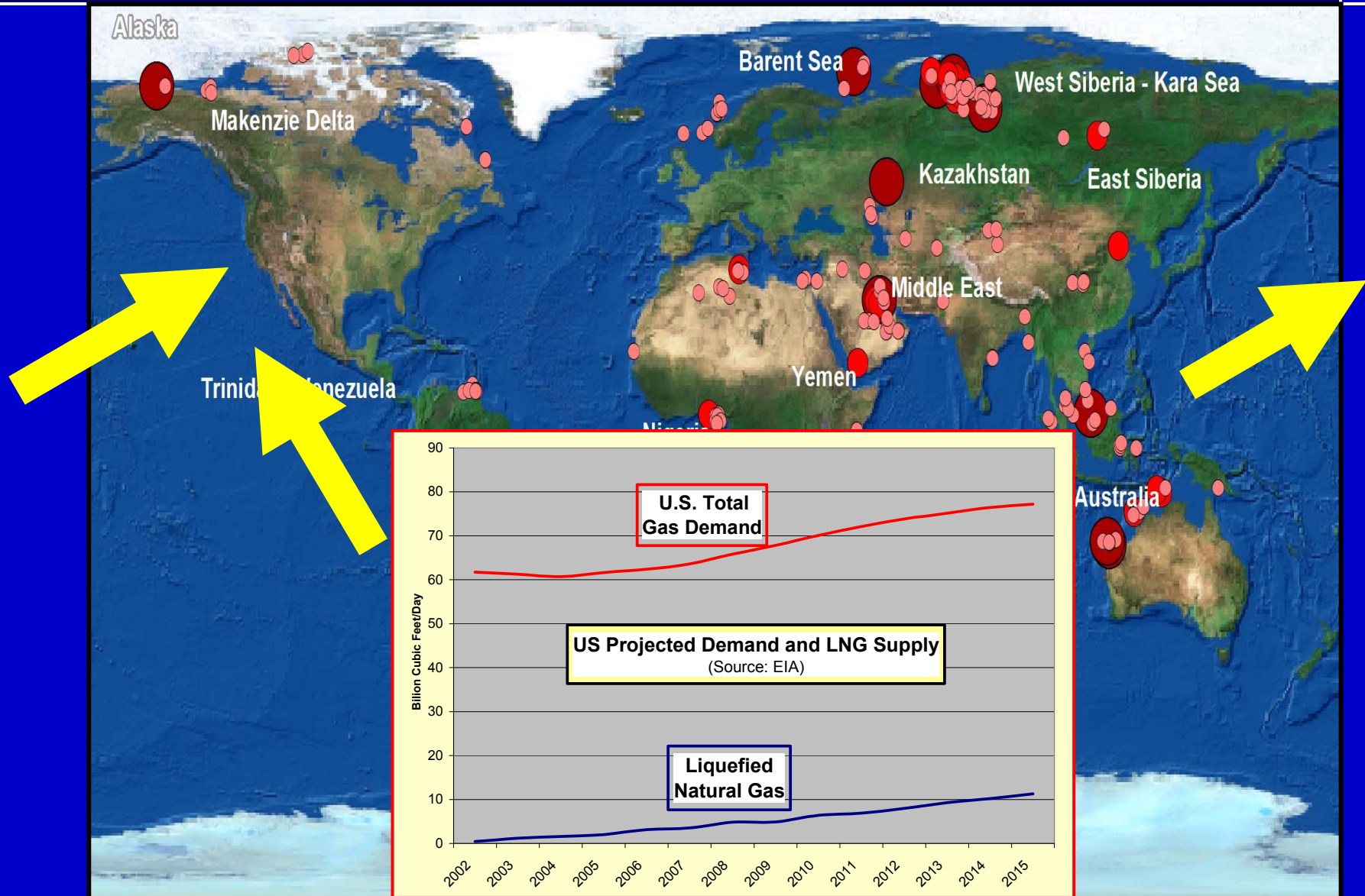
**California Public Utilities Commission  
California Energy Commission  
Workshop #R04-01-025**

**San Francisco  
February 17 & 18, 2005**

**Bob Dimitroff**

# Worldwide Stranded Gas Reserves

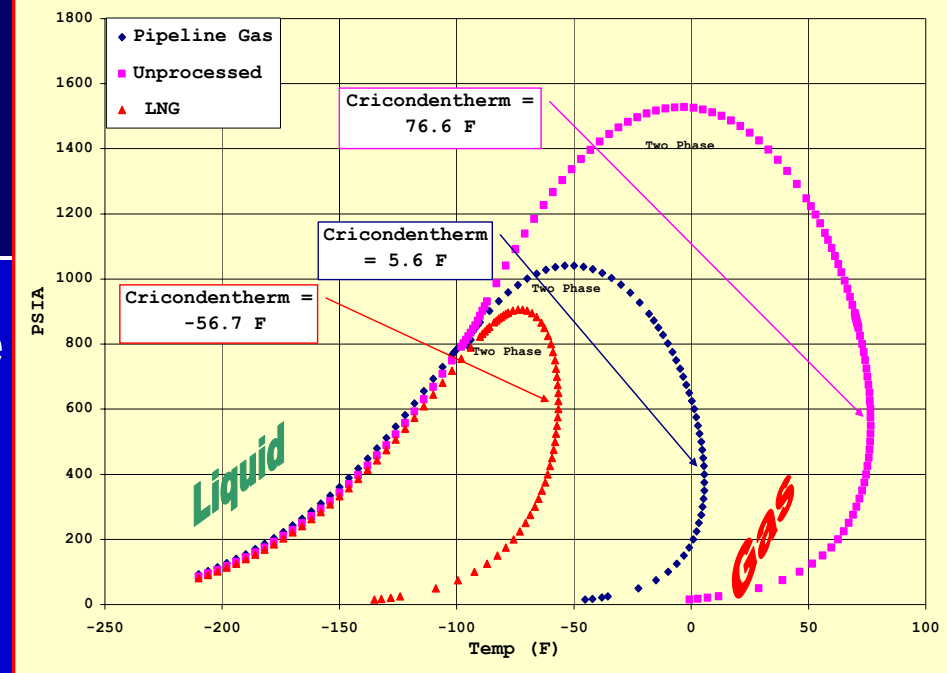
Liquefied Natural Gas: Links gas reserves to markets



# Safety

- ✓ ChevronTexaco Core Value
- ✓ *Top Priority*
- ✓ Natural Gas derived from LNG
  - ✓ Is one of the *safest & cleanest* forms of energy delivery
  - ✓ Has a long history of being *safely transported* worldwide
  - ✓ Will have *no affect* on the safety for end consumers
- ✓ Natural Gas from LNG vs. Domestic Produced Gas:
  - ✓ Is *unlikely* to have hydrocarbon liquid dropout
  - ✓ Does *not* have any water
  - ✓ Has *fewer* impurities – Low N<sub>2</sub>, CO<sub>2</sub>, H<sub>2</sub>S, ...
  - ✓ *More efficient* at delivering BTU's to burner
  - ✓ Has a relatively *consistent gas composition*

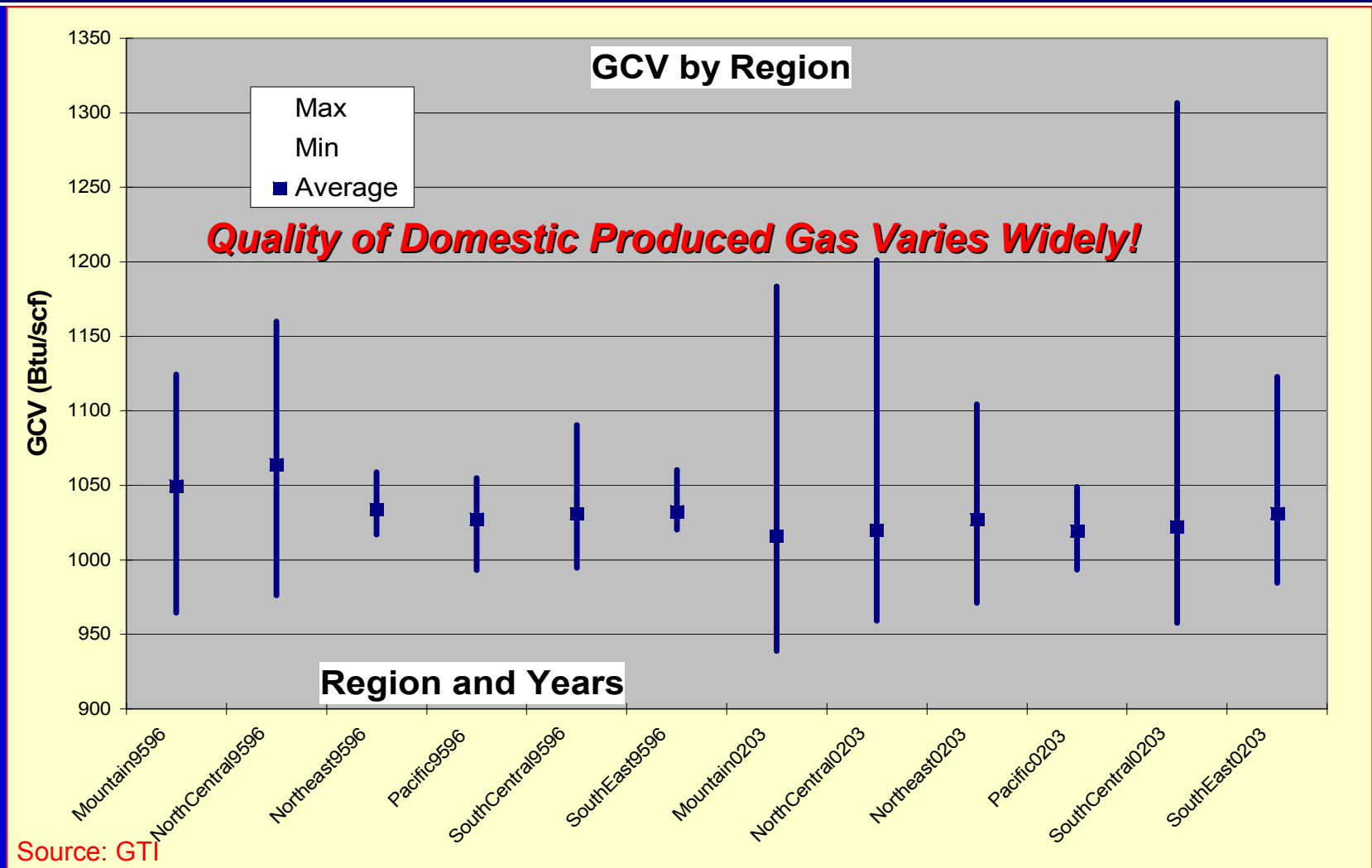
**ChevronTexaco**



Natural Gas Quality Specifications  
CPUC, 17/18-Feb-05

# Variability of U.S. Domestic Gas Production

## Heating value ranges per region



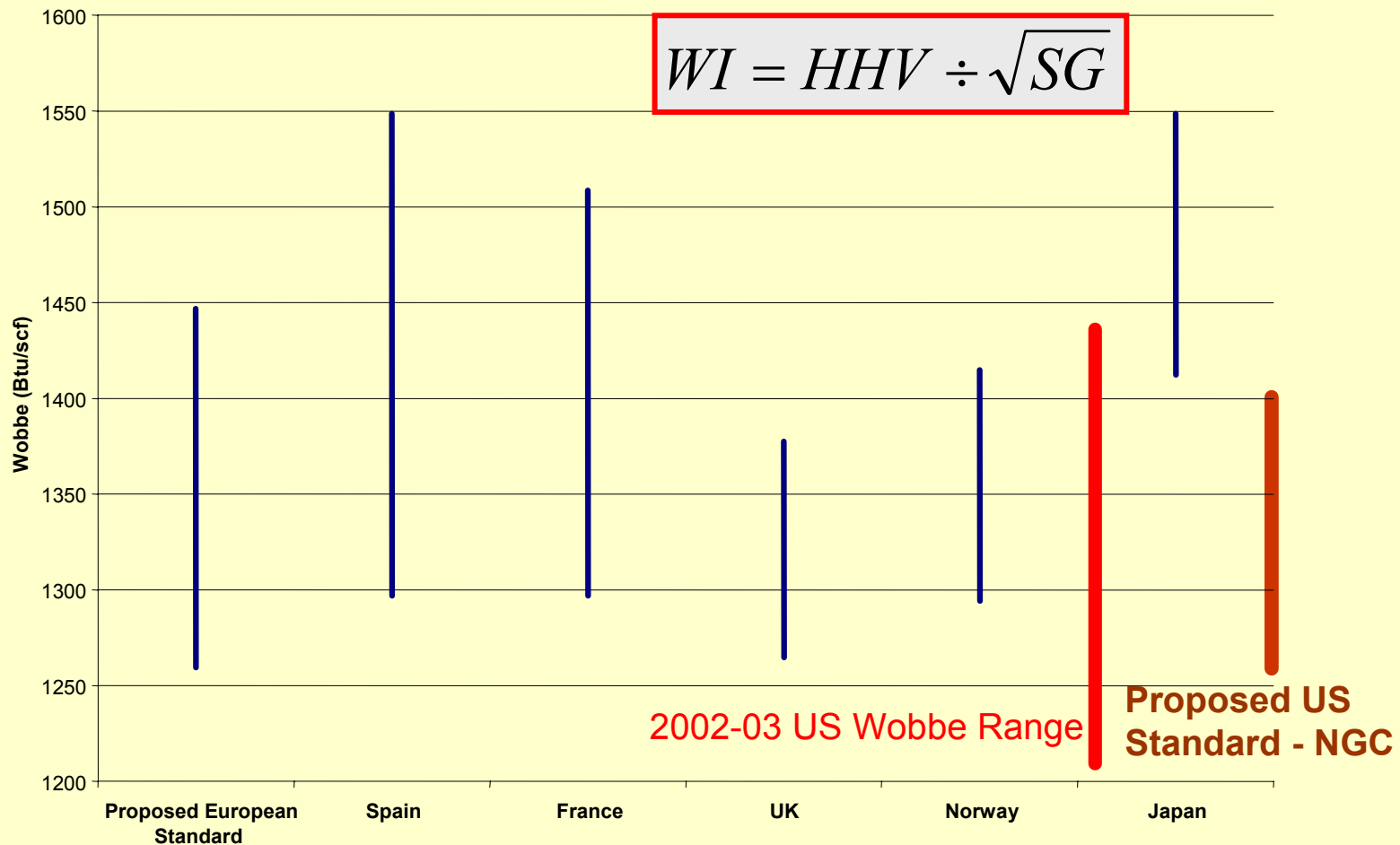
# Interchangeability Will Work!

New standards can be used to regulate the system

- ✓ Definition: Ability for natural gas consumers to use one fuel interchangeably with another
- ✓ Natural Gas from LNG is very similar to domestic supply in terms of composition (86 – 96% Methane)
  - ✓ Less inerts → Higher efficiency
  - ✓ Slightly higher Ethane content
- ✓ Natural Gas Council – Sponsored two task forces:
  - ✓ Liquid Hydrocarbon Dropout
  - ✓ Interchangeability:
    - ✓ Wobbe Index limit of 1400 - WI is a World Standard
    - ✓ BTU limit of 1110

# Wobbe Index Range

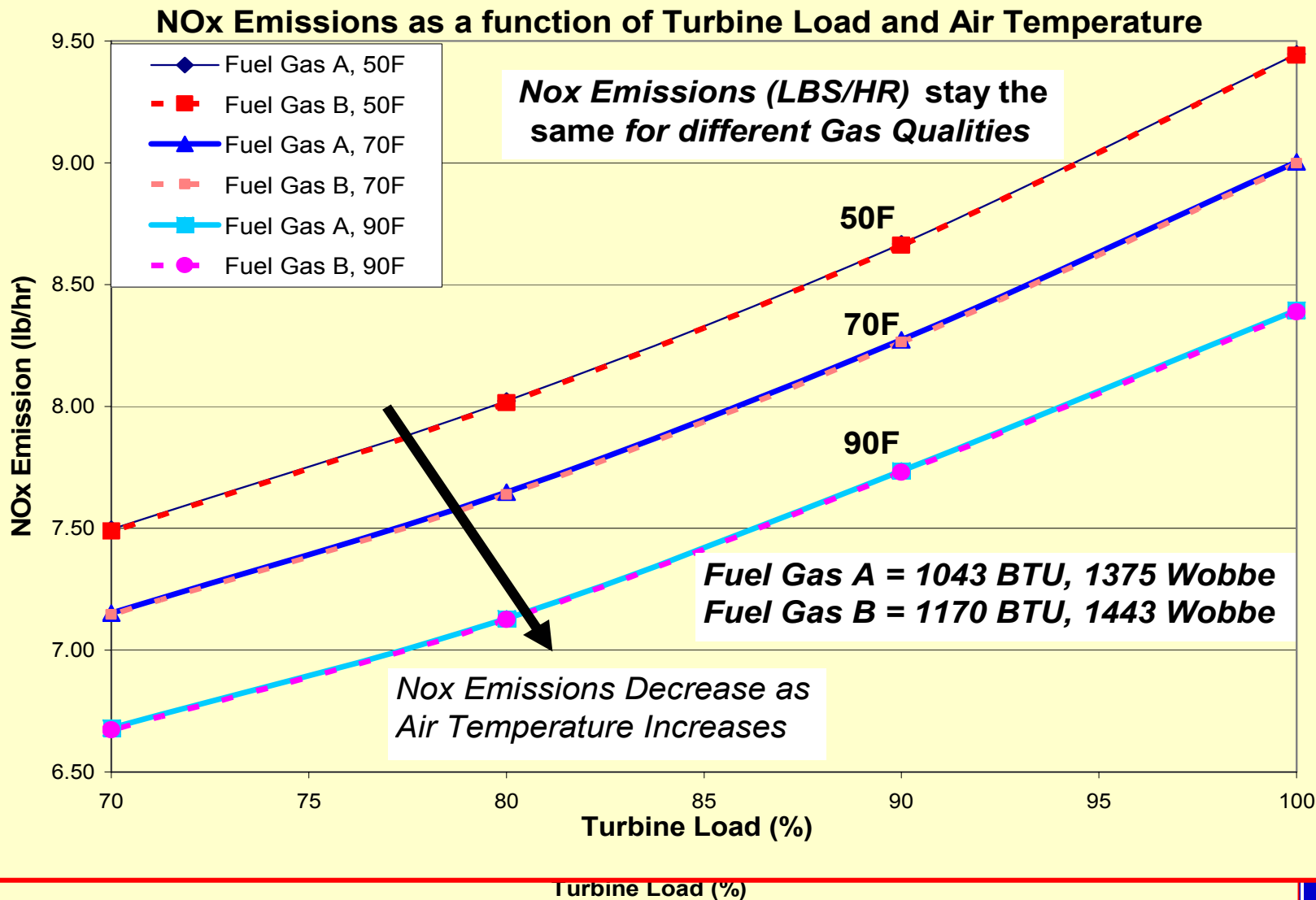
## Worldwide ranges by location



# California Gas Quality Regulations

- ✓ California has done well in regulating delivery systems to ensure safe and clean natural gas for consumers
- ✓ Current CPUC approved specifications are adequate to maintain safety & gas quality – No need to alter these specifications
- ✓ Natural Gas from LNG is well within current specifications.
- ✓ Recommend use of Wobbe Index as primary parameter for gas interchangeability
- ✓ CARB specifications for CNGV are unnecessarily restrictive:
  - ✓ Minimum of 1.5% inerts – affects gas delivery efficiency
  - ✓ Compositional based versus combustion based such as using Methane Number (MN)
  - ✓ MN incorporates composition as well – Replace CARB spec with a MN @ 73 for CNG vehicles

# Air Quality





# Conclusion

- ✓ Natural Gas sourced from LNG:
  - ✓ Can help California *meet gas demand*
  - ✓ Is *safe* and *helps efficiencies*
  - ✓ *Will not impact* Air Quality
- ✓ Current CPUC approved specifications are adequate to maintain safety & gas quality
- ✓ Wobbe Index is a good measure for interchangeability
- ✓ Timely decisions are needed to secure sources of Natural Gas from LNG

*...as a long term gas supply for California*

# Thank you!